

Applicant(s): Ralph et al.
Serial No.: 09/992,612
Filed: 11/13/2001
For: Polyaxial Pedicle Screw Having
a Threaded and Tapered
Compression Locking
Mechanism

Examiner: Reip, D.
Art Unit: 3731
Docket No.: F-146B
Dated: 1/28/2003

26. The assembly of claim 24, wherein said bore includes at least two portions having different diameters.

27. The assembly of claim 26, wherein said second intervening member is positioned within one of said portions having different diameters.

28. The assembly as set forth in claim 24, wherein said second intervening member circumferentially retains the curvate head.

29. The assembly as set forth in claim 24, wherein said first intervening member and said bore further include a mutually engaging conformations and the force applied to said first intervening member is provided by the engagement of said mutually engaging conformations.

30. The assembly as set forth in claim 29, wherein said conformations are threads.

31. A bone anchor and coupling member assembly wherein said coupling member is capable of being selectively positioned and locked at a plurality of angles relative to the bone anchor, said assembly comprising:

a bone anchor having a curvate head;

a coupling member having an axial bore for receiving said curvate head, said bore having an interior surface, and a channel formed therein for receiving an elongate member, at least a portion of said channel being in spatial communication with said bore;

a first intervening member positioned between the curvate head in the bore and an elongate member positioned in said channel; and

a second intervening member positioned in the bore between said curvate head and said interior surface,

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wherein a force applied to said first intervening member urges said curvate head to translate axially within said bore and into locking contact with said second intervening member.

32. The assembly of claim 31, wherein said curvate head is semi-spherical.

33. The assembly of claim 31, wherein said bore includes at least two portions having different diameters.

34. The assembly of claim 33, wherein said second intervening member is positioned within one of said portions having different diameters.

35. The assembly as set forth in claim 31, wherein said second intervening member circumferentially retains the curvate head.

36. The assembly as set forth in claim 31, wherein the force applied to said first intervening member is provided through the elongate member positioned in the channel.

37. An orthopedic device comprising:

a screw having a semi-spherical head and a threaded shaft,

a coupling element having an axial hole extending therethrough for receiving therein the semi-spherical head of the screw such that the screw may be moved through a variety of angles relative to the axial hole, the coupling element further including at least one slot; and

a receiving member including a through hole having an interior wall surface, a portion of the interior wall surface of the through hole being shaped to receive the coupling element and the screw when the semi-spherical head of the screw is mounted within the coupling element.

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wherein engagement of the coupling element and the interior wall surface selectively prevents the screw from moving relative to the axial hole, thereby locking the angle of the screw relative to the axial hole.

38. The orthopedic device as set forth in claim 37, wherein the semi-spherical head of the screw further includes a recess formed therein for receiving therein a screwdriving tool such that the screw may be advanced into a vertebral bone.

39. The orthopedic device as set forth in claim 37 wherein the coupling element further comprises a thread on the exterior thereof configured and dimensioned to engage a thread on the interior wall surface of the receiving member through hole.

40. The orthopedic device as set forth in claim 37 wherein the interior wall surface of the receiving member is tapered.

41. The orthopedic device as set forth in claim 39 wherein the interior wall surface of the receiving member and the exterior surface of the coupling element are tapered.

42. The orthopedic device as set forth in claim 37 wherein coupling element axial hole has a concave surface conforming to the semi-spherical screw head.

43. A pedicle screw and rod coupling member assembly wherein said rod coupling member and screw are capable of being selectively positioned and locked at a plurality of angles relative to one another, said assembly comprising:

a bone screw having a curvate head;

a locking collar disposed around said curvate head and having a slot; and

a rod coupling member having a bore therethrough for receiving said curvate head and locking collar, said bore having an interior surface and a pair of upwardly extending

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members forming a rod-receiving U-shaped channel, said upwardly extending members having threads thereon for receiving a locking device,

wherein said pedicle screw and rod coupling member assembly assume a first position such that said rod coupling member and screw are capable of assuming a variety of angles relative to each other and a second position with a rod member disposed in said rod-receiving U-shaped channel and said locking device tightened on said threads such that said locking collar engages said rod coupling member interior surface to lock the angle of the screw relative to the rod coupling member,

44. The pedicle screw and rod coupling member assembly as set forth in claim 43, wherein said locking collar slot extends the entire length of the collar, thereby rendering the collar an incomplete circle.

45. The orthopedic device as set forth in claim 43, wherein the semi-spherical head of the screw further includes a recess formed therein for receiving therein a screwdriving tool such that the screw may be advanced into a vertebral bone.

46. The orthopedic device as set forth in claim 43, wherein the rod coupling member interior surface includes a lower portion that is inwardly tapered, and which engages said locking collar to crush lock the locking collar to the curvate head of the screw.

47. The orthopedic device as set forth in claim 44, wherein the rod coupling member interior surface includes a lower portion that is inwardly tapered, and the exterior surface of the locking collar is tapered to engage said inwardly tapered surface.

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With this additional preliminary amendment, the Applicants have increased the number of pending independent claims from 3 to 7, and have increased the number of pending claims from 12 to 36.

Assuming Applicants' pending Request for Refund (filed 4/29/2002) is accepted and processed, Applicants have previously paid the base utility application filing fee of \$370.

Applicants have claimed and still claim small entity status. With this preliminary amendment, Applicants must pay the small entity fee for 4 independent claims in excess of 3, which is $\$42 \times 4 = \168 , and must pay the small entity fee for 16 claims in excess of 20, which is $\$9 \times 16 = \144 , for a total of \$312 due. Applicants hereby authorize the payment of the \$312 due, via Deposit Account 06-0245, in the name of Fastenetix, LLC. If any additional fees are required to effect this preliminary amendment, Applicants hereby authorize payment of same from the same Deposit Account.

Should the Examiner have any questions or comments concerning this preliminary amendment or any other matters pertaining to this application, the Applicants respectfully request that the undersigned be called so that the same may be addressed in the most rapid and direct manner.

Respectfully submitted,



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